

## WHAT IS CLAIMED IS:

1. A method for solving a mismatched negotiation result between an auto-negotiation mode and an enforce mode in a Ethernet, the method being applied to a local device with an auto-negotiation mode, the local device being connected to a remote device, the local device having a plurality of registers comprising at least an auto-negotiation advertisement register (ANAR) for recording information advertised to the remote device by the local device, and an auto-negotiation link partner ability register (ANLPAR) for recording an ability of the remote device, the method comprising steps of:

10 (a) turning on the auto-negotiation mode;

(b) determining whether the remote device is in the auto-negotiation mode;

(c) setting contents of the ANAR register according to a transmission mode enforced by a user when the remote device is in the auto-negotiation mode;

15 (d) restarting the auto-negotiation mode;

(e) determining whether the contents of the ANAR and the ANLPAR registers are matched, wherein if the contents of the ANAR and the ANLPAR registers are matched then proceed to a step (f), and otherwise proceed to a step (g);

(f) setting the local and the remote devices to be normally connected and terminating the method; and

20 (g) disconnecting the local and the remote devices.

2. The method of claim 1, wherein the transmission mode of the local device enforced by the user is selected from a group consisting of a 100 Mbps full duplex mode (100FDX), a 100Mbps half duplex mode (100HDX), a 10Mbps full duplex mode (10FDX), and a 10Mbps half duplex mode (10HDX).

3. The method of claim 2, wherein in the step (c), when the remote device is in the auto-negotiation mode, further comprises steps of:

(c1) determining whether the user enforces a transmission speed to 10Mbps, if the transmission speed is 10Mbps then proceed to a step (c2), otherwise proceed to a step (c5);

(c2) turning off the 100FDX mode and the 100HDX mode;

(c3) determining whether the user enforces the transmission mode to be a full duplex (FDX) mode, if the transmission mode is the FDX mode then proceed to the step (d), otherwise proceed to a step (c4);

10 (c4) turning off the 10FDX mode and proceeding to the step (d);

(c5) turning off the 10FDX mode and the 10HDX mode;

(c6) determining whether the user enforces the transmission mode to be the FDX mode, if the transmission mode is the FDX mode then proceed to the step (d), otherwise proceed to a step (c7); and

15 (c7) turning off the 100FDX mode.

4. The method of claim 1, wherein in the step (b) when the remote device is not in the auto-negotiation mode, further comprises steps of:

(b1) setting the local device to a disconnected status and turning off the auto-negotiation mode;

20 (b2) setting the transmission mode;

(b3) resetting the local device to a connected status; and

(b4) terminating the method.

5. The method of claim 1, wherein after the step (f), further comprising steps of:

(f1) turning on the auto-negotiation mode when the local and the remote devices restart the link after link down ;

(f2) determining whether the contents of the ANAR and the ANLPAR are matched; and

5 (f3) disconnecting the local and the remote devices if the contents of the ANAR and the ANLPAR registers are not matched.

6. The method of claim 5, wherein in the step (f2) when the remote device is not in the auto-negotiation mode, further comprising steps of:

(f5) turning off the auto-negotiation mode; and

10 (f6) setting the transmission mode.

7. The method of claim 1, wherein the local device is a local computer or a local switch.

8. The method of claim 1, wherein the remote device is a remote computer or a remote switch.

15 9. A method for solving a mismatched negotiation result between an auto-negotiation mode and an enforce mode in a Ethernet, the method being applied to a local device with an auto-negotiation mode, the local device being set to one of a 100 Mbps full duplex mode (100FDX), a 100Mbps half duplex mode (100HDX), a 10Mbps full duplex mode (10FDX) and a 10Mbps half duplex mode (10HDX), the local device  
20 being connected to a remote device, the local device having a plurality of registers comprising at least an auto-negotiation advertisement register (ANAR) for recording information advertised to the remote device by the local device, and an auto-negotiation link partner ability register (ANLPAR) for recording an ability of the remote device, the method comprising steps of:

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- (a) turning on the auto-negotiation mode;
- (b) determining whether the remote device is in the auto-negotiation mode;
- (c) determining whether a transmission speed of 10Mbps is enforced by a user when the remote device is in the auto-negotiation mode, wherein if the transmission speed is 10Mbps then proceed to a step (d), otherwise proceed to a step (g);
- (d) turning off the 100FDX mode according to contents of the ANAR register;
- (e) determining whether the user enforces the transmission mode to be a full duplex (FDX) mode, if the transmission mode is the FDX mode then proceed to a step (j), otherwise proceed to a step (f);
- 10 (f) turning off the 10FDX mode according to the ANAR register and proceeding to the step (j);
- (g) turning off the 10FDX and the 10HDX modes according to the ANAR register;
- 15 (h) determining whether the user enforces the transmission mode to the FDX mode, if the transmission mode is the FDX mode then proceed to the step (j), otherwise proceed to a step (i);
- (i) turning off the 100FDX mode;
- (j) restarting the auto-negotiation mode;
- (k) determining whether the contents of the ANAR and the ANLPAR registers

20 are matched; and

- (l) disconnecting the local and the remote devices if the contents of the ANAR and the ANLPAR registers are not matched.

10. The method of claim 9, wherein in step (b), when the remote device is not in the auto-negotiation mode, further comprises steps of:

(b1) setting the local device to a disconnected status and turning off the auto-negotiation mode;

(b2) setting the transmission mode;

(b3) resetting the local device to a connected status; and

5 (b4) terminating the method.

11. The method of claim 9, wherein after the step (m), further comprising steps of:

(m1) turning on the auto-negotiation mode when the local and the remote devices restart the link after link down;

10 (m2) determining whether the contents of the ANAR and the ANLPAR registers are matched; and

(m3) disconnecting the local and the remote devices if the contents of the ANAR and the ANLPAR registers are not matched.

12. The method of claim 11, wherein in the step (m2), when the remote device is not in the auto-negotiation mode, further comprising steps of:

(m5) turning off the auto-negotiation mode; and

(m6) setting the transmission mode.

13. The method of claim 9, wherein the local device is a local computer or a local switch.

20 14. The method of claim 9, wherein the remote device is a remote computer or a remote switch.

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